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SPECIALTY SOUND AND IMAGE

Project title:

PRODUCTION AND EDITION OF A DIGITAL VIDEO

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## 1. Introduction

This Technical Working Report is drafted as a Thesis for obtaining the degree of Technical Engineer of Telecommunications specialty Sound and Image, by the School of Industrial Engineering and Telecommunications at the Public University of Navarre, supervised by Professor Ankei and carried out during my stay in Yamaguchi Prefectural University, in the city of Yamaguchi, Japan, between September 2012 and March 2013.

### 1.1. Goal of this Project

The general aim of the project is to produce a short film on digital video. The main purpose I want to achieve is to develop all phases of creation while experimenting with different audiovisual techniques.

This project is designed to learn all artistic, creative and technical phases of creating a digital video developed over the image and sound design for a short film, involving the following steps: preproduction, production and postproduction.

## 1.2. Materials

The most important part of making a digital video is to film the images, so among all electronic devices I had to use, the camera is the main one. I was borrowed it and the other materials by Professor Ankei.

### 1.2.1. Camera

The camera's model is Sony DCR-SR100.

#### Features

- 30-gigabyte hard drive stores over 20 hours of long-play video or over 7 hours of high-quality video.
- Measures 3.16 x 2.87 x 5.86 inches (H x W x L) and weighs 22 ounces with battery.
- Built-in microphone for Dolby Digital 5.1channel surround sound recording.
- 3.3-megapixel 1/3-inch advanced HAD CCD and Carl Zeiss Vario-Sonnar lenses with advanced optical multi-layer coating.
- Several automatic exposure modes, including NightShot for video capture in total darkness.



#### Specifications

Image device:	0.33-inch CCD
Pixel gross:	3310K
Recording media:	30 GB hard disk drive
Recording and playback time:	HQ: 440 minutes; SP: 650 minutes; LP: 1250 minutes

Video actual:	2048K pixels
Still actual:	3048K pixels
White balance:	Auto, indoor, one-push, outdoor
Still image format:	JPEG
Minimum illumination:	5 lux (0 lux with Super NightShot infrared system)
Input/output:	Analog AV input (multi AV), analog AV output (multi AV), digital AV input (via USB), digital AV output (via USB), USB port (2.0 compliant), microphone input (thru active interface shoe), remote jack (mini plug), S-video input (optional accessory), S-video output (optional accessory)
Display:	2.7-inch 123K-pixel wide 16:9 touch panel swivelscreen LCD display
Lens type:	Carl Zeiss Vario-Sonnar T
Viewfinder:	Color (123K pixels)
Microphone:	Yes (built-in 5.1 channel)
Focal length (35-millimeter equivalent):	42.8 to 495 millimeters (16:9 camera mode), 45 to 450 millimeters (4:3 camera mode), 40.6 to 406 millimeters (16:9 memory mode), 37 to 370 millimeters (4:3 memory mode)
Aperture:	f1.8 to f2.9
Exposure:	Touch panel (24 steps)
Filter diameter:	30 millimeters
Focal distance:	5.1 to 51 millimeters
Focus:	Full range auto, manual (touch panel)
Shutter speed:	Auto, 1/4 to 1/4000 seconds (AE mode)
Zoom:	Optical: 10x; digital: 120x
Power supply:	InfoLithium battery pack, AC adapter
Power consumption:	3.9/4.3 W
Video recording system:	MPEG2
Video signal:	NTSC color, EIA standards
Analog-to-digital converter:	Yes
OS compatibility:	Windows 2000 Professional, XP Home/Professional
Dimensions (W x H x D):	3.17 x 2.7 x 5.87 inches / 80.5 x 68.5 x 149 millimeters
Weight:	1 pound 6 ounces / 615 grams with battery
What's in the Box:	DCR-SR100 camcorder, power adapter/in-camera charger (ACL200), InfoLithium rechargeable battery (NPFP60), remote commander remote control (RMT-835), AV cable (stereo), software, USB cable

### 1.2.2. Conversion lens

#### Specifics

##### Product Information:

Never let a special moment slip out of frame with the VCL-0630X wide-angle conversion lens from Sony. Designed for 30mm lens Handycam camcorder, it provides 0.6X magnification for spectacular wide-angle video footage. The VCL-0630X features high quality ABS plastic and glass construction with a three group, three-element design. The included carrying pouch and front and rear lens caps help protect it from dust and scratches while off of the camcorder.

##### Product Identifiers:

Model	0630X
MPN	VCL0630X
UPC	027242663022

##### Lens System:

Type	Teleconverter
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##### Dimensions:

Weight	2.4 oz
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The Sony VCL-0630X Wide-angle adapter screws into the front of the camcorders zoom lens to provide an even wider angle of coverage (0.6x) for those times when you are shooting in a confined space or for shooting scenery. The wide-converter is useful indoors as well, since you'll be able to fit more of your subject into the picture frame. It includes 2 lens caps and storage pouch.



### 1.2.3. Microphone

#### Features

Capture the audio you need to make your videos come to life with the ECM-HGZ1 shotgun microphone. Designed for use with your compatible Handycam® camcorder, the ECM-HGZ1 synchronizes the audio to the camcorder's zoom for audio that is distinct for both modes. In telephoto mode, the microphone focuses on the audio straight ahead of it, isolating the subject matter. In wide-angle mode, the microphone broadens its recording range, so no sound occurring in frame is missed. The ECM-HGZ1 is designed to work with your camcorder's active interface shoe, so it is easy to connect and simple to use. This microphone is powered by the camcorder, so there is no need for a separate battery.

#### Product specifications:

##### Operating conditions

- Operating Temperature : +0° to +40°C (+32° to +104°F)

##### General

- Directivity : Microphone: Gun/Zoom
- Power Supply : From Main Unit via Accessory Shoe
- Storage Temperature : -30° to +65°C (-22° to +149°F)

##### Recording

- Microphone/Speaker : Type: Electret Condenser Microphone

##### Interface

- Accessory Shoe : Active Interface Shoe(16pin)

##### Weights and measurements

- Dimensions (Approx.) : 1 2/15" x 2 3/13" x 4 8/15" (28.8 x 56.8 x 115mm)
- Weight (Approx.) : 2 oz (50 g)



#### 1.2.4. Tripod

##### Features

- Compact and lightweight, just over 22 in. long when closed and weighing just 2.8lbs
- 3-way pan head with long panhandle for sure camera control
- Rack and pinion geared center column with handle
- Easy to attach quick release plate

##### Slik F630 Tripod with 3-Way Pan Head and Case

The Slik F630 is a compact and lightweight 3-section tripod with 3-way pan head, geared center column, and speed-release leg locks. Also features a quick release shoe for easy mounting and removal of camera or camcorder, and bubble level.

- 3-section legs
- 3-way pan head
- Maximum height of 1470mm
- Folds away to a compact 560mm
- Rack & pinion geared center column
- Speed release leg locks
- Quick release shoe
- Bubble level
- Recommended for compact camcorders, digital cameras.
- Tripod case included





## Specifications

Complete with Head	
Maximum Operating Height:	1470mm
Centre Column Extension:	325mm
Folded Length:	560mm
Number of Leg Sections:	3
Maximum Load:	1.32kg
Quick release shoe	Yes
Head	3-way pan head
Bubble level	Yes

### 1.2.5. Mini tripod

Description:

#### Highlights

- Compact Mini Tripod
- The legs can collapse for portability
- Extensible legs to reach 18cm in height (14.5cm when contracted)
- Ideal for all kind of mini video and mini video cameras



### 1.3. Structure of the work

The video has several distinct parts, so it is easy to see the process of the festival and the different events that took place throughout the day of shooting.

The first part was filmed indoors, at Miyano Communication Center, in the room in which the participants of the festival were dressing the typical clothes.

The second part was held in the same place, but in another room. This time the purpose was to film them relaxing before the festival, hanging out, having fun, eating and drinking, and being made up by a woman who was an expert in that field.

And the third one was the most interesting, the longest, and that in which I could see how Japanese people celebrate one of their traditional ceremonies. It was filmed outdoors, so it was necessary to work on the illumination of the scenes in the post-production stage, paying special attention to the color temperature and the brightness of some images.

Also, there are some animations included in the beginning and in the end of the video, of variable difficulty.

## 2. Basics

### 2.1. Image

It is interesting to know the aspects that make the film technique create the illusion of movement.

This is due to a physiological property of the human eye to retain an image for a fraction of a second. The retina, when it is impressed by the light, can preserve the image for a moment after it disappears. This capability is called retinal persistence or persistence of vision.

The continuous images going on a regular basis are the frames of film. Projecting them in succession but separated by a small piece of black that remains invisible to the human eye, produces the sensation of movement to be chained one after another. This is because each of the frames impressed on the retina remains until the occurrence of the next.

When the frequency of the images or frames is more than sixteen per second, the retina plays the series as a single clip, without apparent discontinuity. With sixteen frames per second, it shows a light flicker, which disappears completely when the frequency increases to 48 images per second. Although the standard rate is 24 fps, the problem is solved projecting each frame twice, increasing, therefore, the frame rate to 48 fps.

From a strictly technical standpoint, a film is photography in motion. The advantage of film is that ability to create movement.

The device that makes this possible is the video camera, and this is work for the director of photography, since he is the person responsible and aware of it.

Importantly, there are not two films with the same visual style. There are approaches, similarities, but every cinematographer has his own style and it may vary subtly or much more risky. The cinematographer determines and oversees technical and artistic parameters for taking pictures.

The area of responsibility of cinematographer encompasses both the technical and the artistic, and his job is to create the film in collaboration with the director.

The preparation or pre-production normally begins several weeks (or months) before shooting. In this period, the script becomes the main reference point for all team members. Meanwhile, the production department is working on the budget, planning, selection of different technical elements, etc. It is decided which is the software that will be used for the digital processing of images (digital video).

The filming or production is undoubtedly the decisive stage in the production of a film.

The cinematographer has a great influence on the viewer and his emotional response. This may be driven by the choice of different objectives, the camera movements or by the angle and height of the camera.

Light is total responsibility of the cinematographer and it is usually regarded as his most important contribution.

The dramatic and emotional effect of an image can be altered through the use of filters and color treatment. These effects can be achieved by filtering the light or by using filters into the camera. Formerly, the work of special effects was made in the camera. Today, thanks to the spectacular advances in technology, most of the effects are done in post-production.

The post-production covers the phases of mounting, special effects and sound. The cinematographer must adjust the color and brightness of each of the plans to make the transition from one to another smooth, even if they have been shot in very different circumstances. We call this grading. Even at this stage you can take some creative decisions varying the color filters and light intensities of different images.

In more modest projects, the post-production process of some cinematographers already begins with capturing images. The catch is to put the video signal captured by a camera on magnetic tape or hard disk to the workstation, for further editing. This process may involve the digitization of the video signal, when that has been captured in analog mode, or simply copying digital files from one carrier to another, when the recording was made directly in digital format.

The software used was Adobe Premiere Pro CS5.5, to select good shots and make the film. Once the short film was mounted, through the same software it was necessary to digitally process the image, to achieve continuity of light from plane to plane.

## 2.2. Sound

Sound is the perception of the human beings to changes in pressure on their ears.

It is subjective, that is, it has to be perceived by anyone to consider it as such. 90% of the theory applied in acoustic science is based on objective mathematical techniques, but the ending perception is something that depends on the listener. This is called "Psychoacoustics".

For the ultimate goal of the sound designer this second part is the most important one, because its function is to manipulate and adjust the sound so that it seems that there has been not any manipulation. And create an art project to reach the viewer convey a story.

### **Digital sound**

Digital sound is represented by digits, using numbers, namely 0s and 1s. Any information can become digital if it's finite.

Digital sound has the great advantage of being stored, reproduced, copied and manipulated countless times without loss of quality between the first and last copy.

Another important feature of digital sound is the nonlinearly management by audio editing program. The modern editing techniques eliminate the vast work done in a linear analog way, saving time.

The most important parameters of digital sound are:

- **Sample Depth:** It is related to the dynamic range and accuracy of digital sound compared to analog, i.e., how similar they are after an analog-digital conversion.

The minimum standard in professional audio is 16 bits, which represents 65,536 possible values for each sound sample, or equivalently, a quantization signal to noise ratio of about 98 dB's (for a sine wave of peak amplitude).

- **Sample Rate:** This parameter is related to the speed at which the analog sound samples are obtained during the analog-digital conversion.

The minimum standard in professional sound is a sampling rate of 44.1 KS / s, ie CD quality to ensure a bandwidth of about 22 kHz, upper to the limit of human hearing.

The sound in the cinema  
Role of sound in cinema

The sound in a film is a listening experience built to support a narrative history.

The dialogue and narration tell the story, but the sound effects can also be used for this purpose.

It also performs the role of subconscious influencing viewers unconsciously. Normally all the viewers' attention focuses on various objects in the image, an actor, a table, but often they perceive sound overall, although actually the sound can also be divided into different sound elements.

And this is the key for a sound designer: the inability of listeners to separate the sound in different parts gives him the possibility to manage them at his convenience at any time of the narrative.

A film production has at least three temporarily differentiated phases:

- The pre-production, in which the film is planned and all the details needed get ready.
- The production, which is filming with the actors.
- The post-production, which is collecting all the material and work with it to produce the final product.

The sound process of a production is also based on these three fundamental phases.

### Sound elements

The audio content of a film is mainly divided into three sections:

- Dialogues
- Sound effects
- Musical Soundtrack

The dialogue is the basic support for a film script and probably it is the most important of the three sections, for two reasons: first, because it is the backbone of the story, and then, because it is the element that is the viewer more aware of, and any deficiency in quality makes him feel uncomfortable or lost because the viewer does not understand what is being said.

Therefore, they must be clear, credible, and understandable and they should not have distortion or noise.

There are several sources of dialogue:

- Direct dialogue or production: it is the recorded during filming, directly from the interpretation of the actors in each shot.
- ADR (Automated Dialog Replacement), also called looping: a postproduction technique in which the actors dub their own voices to improve low quality direct dialogue.
- Voice-Over: Voice in the foreground that is also recorded in post-production. Used to stories, thoughts of the characters...

- Dubbing in other languages.

The sound effects are the rest of the sounds that make up the audio of the film, except for the music. The types of effects, their sources, their processing, and so on, are so varied that also require a separate treatment.

They are divided into:

- The effects of production: all recorded sounds in the filming other than dialog. It is tried to minimize them.
- The FX (special effects): artificial sounds added in post-production associated with the visual elements of the story.
- Environments: long and low sound that provide continuity and a sense of being in a real acoustic space. His absence is more noticeable than its presence, and the viewer sometimes expect to perceive them.
- The Foley: special effects considered separately because they are recorded by an actor that produces them in a dubbing session.

Finally there's the music or the soundtrack. It is classified outside the dialogue and effects for two reasons: because the reaction process is independent of the rest of the sound of the movie, and because it has its own well-defined objectives from the point of view of the overall sound and it is a key within the dramatic development of the narrative.

### 3. Development of the work

#### 3.1. Pre-production stage

##### 3.1.1. Image

One of the key steps for getting a good result when a digital short film is made is all the work needed before to shooting, and that's what it is called pre-production.

Before filming the images that are going to be part of the video, it is very important to know which pictures you want to take, so you must work on the shooting schedule, the planning of every day of work, and the storyboard of the story you want to tell to the viewer.

Sometimes, as in my case, this is almost impossible. Making a documentary is different because you have to film some people celebrating a festival, so you don't know exactly what you are going to find, and you can't either control the situation. You have to adapt yourself to the schedule and the usual process of the festival.

At least, I could get some information about the festival and about what people usually do. Because of this, I also had to work on a kind of pre-production stage, but a bit different from the usual it is made in cinema, in which I designed the idea of the video, thinking about every plane of the film and what I wanted to achieve after editing it.

Also, I could know that it took place in different locations, indoors and outdoors, so I was prepared to find more complications because of the changes of the illumination of the scenes. This is something I couldn't solve in the production stage, so it is work for the post-production.

Anyway, it is necessary to have some knowledge of the procedure of filming, and it is important to be aware of possible problems showing up during that process. So, it should be a good idea to take a look to some aspects and characteristics to take into account before filming.

#### Illumination

Illumination is one of the elements that create (or at least helps to create) the mood and atmosphere necessary to tell a story.

#### Atmosphere

It is one of the most determining factors to obtain the result you want in an audiovisual work, and therefore it has to be determined at an early stage for the subsequent planning of the lighting in the different scenes.



When speaking of illumination it is essential to mention the "color temperature", and it refers to the expression of the spectral distribution of the energy of a light source and, therefore, its color quality. It is expressed in Kelvin (K), which is obtained by adding 273 to Celsius degrees.

When we say that a light source has a specific color temperature of 5000K for example, it means that it would be necessary to heat a black body at this temperature to make the body radiate a light with the same color as the source.

When a black body is heated it gets first red, then orange, etc. Therefore, the light from the red end of the spectrum is said to have a low color temperature, which rises as it goes toward the blue region thereof.

Films in color are "balanced" to the quality of light at which they should be exposed. Virtually all artificial light sources have a color temperature between 2000 K and 6000 K. The blue sky with sun color temperature is approximately 6000 K, and reaches about 10,000 K when it's cloudy.

Here there are some examples of approximate color temperatures:

- 1700 K: light of a match.
- 1850 K: candlelight.
- 2800 K: incandescent or tungsten (conventional domestic lighting).
- 3200 K: tungsten (professional lighting).
- 5500 K: daylight, electronic flash (approximate).
- 5770 K: color temperature of the pure sunlight.
- 6420 K: Xenon lamp.
- 9300 K: TV screen (CRT).
- 28000-30000 K: lightning.

## Camera parameters

To take full advantage of the camera you have to know it completely and you must take into account aspects such as features that your camera has (filters, gain, white balance, zebra function...), objective (lens, focal length...), etc.

The camera parameters taken into account are:

- Diaphragm opening: the diaphragm is a part of the lens which limits the ray of light entering the camera. It works like the iris of the human eye, opening or closing to allow more or less light as needed.

How much opened the diaphragm is it is called diaphragm aperture, and it is measured in numbers f. The jump from one value to the next one is called step.

The relationship between the numbers f is that for every step, the luminosity is doubled or halved if we increase or reduce respectively. So f11 is twice brighter than f16 and twice darker than f8.

- Focal Length: the distance between the image plane and the plane of the lens. The variation of the distance makes the angle of the image vary.

- Depth of field: when you focus on an object, the objects at varying distance of that object are not equally focused. The loss of sharpness is gradual and there is a zone before and after the focused distance, that is not focused at all but that the eye cannot see, and therefore it is considered clear-cut. This area corresponds to the depth of field of the lens.

The depth of field varies with the size of the lens aperture, with the distance between the camera and the subject, and with the focal distance of the lens. The depth of field is greater as:

- 1 - The size of the aperture of the lens decreases.
- 2 - The distance to the subject increases.
- 3 - The focal length of the lens decreases.

- Distance to the object: this is really focusing distance, which is the one between the camera and the object you want to capture.

- Filter: select a filter that make the conversion to the appropriate color temperature at each light position.

A camera does not have the ability to process light as does our brain, therefore, is important (essential) to do the "White balance adjustment" in digital cameras. To do this, simply approach a white object (paper, for example) and press the white calibration button.

The PAL system, whose acronym derived from the initials "Phase Alternation Line" is the standard used in Europe, Australia, China and South America, so Spain uses this transmission system.

In the PAL system, 25 full frames per second are shown. Each image consists of 625 lines. It is said that a system is interlaced when an image is actually composed of two images, one with the even lines and the other with the odd, with 312 lines each. Each image of 312 lines is called field (a complete image consists of two fields). These fields have a double frequency, i.e. 50 times per second.

### 3.1.2. Sound

Pre-production is everything that needs to be analyzed and prepared before recording audio. It is a seminal work because it is the base that will make production and post-production succeed.

It is very important to make a good sound planning because it determines the success or failure of the subsequent phases.

The purpose of this planning is to optimize time and resources in the process of shooting. It's also necessary to anticipate possible problems that may arise and try to be prepared for them.

The idea of the video is to make a kind of documentary of a typical festival in the city of Yamaguchi, so there are not dialogs (they are unexpected) and the importance of its sound falls on the soundtrack. Nevertheless, it's also important the background noise, to make it more real and not to feel a strange and fictitious lack of sound while watching the video.

One of the most fundamental aspects of pre-production is to prevent or minimize problems that may arise during the shoot and be prepared if they appear. Organizing a well optimized shooting schedule is necessary to save time, money and effort.

So it is useful to know in advance the locations and analyze them from the perspective of the audio. Since typically they are chosen based on the image you want to get and it is not considered the sound problems that you may face.

#### Outdoor Noise

The microphones are not as selective as they should be to achieve a perfect sound quality, so there is always unwanted noise which can't be avoid while recording.

It is convenient to visit the locations to hear the sounds that are part of the place in which you need to film and see what you will face during recording. This way, you will know what will be part of the record and it will be easier to think of possible problems and solutions. It is advisable to go there at the same time you will be recording and with the same conditions.

#### Indoor noise

The indoor locations have fewer contingencies than outdoors, but it is still convenient also to visit that place in the same condition in which you will be recording.

You should, as far as possible:

- Disconnect, if possible, all sources of unwanted noise that may be picked up by the microphone.

- Close all doors and windows in all cases that the scene permits.
- If you can't eliminate an unwanted noise source, try to devise a solution to justify it to the viewer through a visual reference.

The main problem of filming this video can be that it has outdoor and indoor locations, and I need to film near a highway. It could be solved just eliminating those parts of the sound in which there is so much background noise, but that's more complicated than it can be thought in a first moment, because an important part of the soundtrack is made by a song I have to record while filming.

### Conclusions of the pre-production

A good sound pre-production is essential to ensure a proper development of the next phases in a production.

While reading the script, it is important to try to listen mentally what would be happening on stage and in the environment in which it takes place. Thus, you will have a very clear idea of how the final audio track will sound from the first moment you start to plan the sound design.

If you predict the sounds needed and those you don't need, you can optimize the time of work recording only what you want and not wasting the valuable time of the shooting in the superfluous.

Do not forget to plan the recording of sound elements that can be obtained directly from the shooting, such as ambient sounds, because they are a very good resource for post-production when you try to make the story happen in a continuous way.

Never forget that everything that is seen needs to be heard.

You should verify that the equipment and locations allow audio to get the ideal characteristics to minimize post-production work and create a good final track.

A good audio track starts in pre-production.

### 3.2. Production stage

In this phase, since I was the only person filming the images, it was impossible to record the sound in a better way, so I only could do it with a directional microphone pinned to the camera. Because of this, the original sound of the images is not as good as I would like. Anyway, I could correct it in most of those cases in post-production, either muting them and putting a soundtrack instead of them or adding some effects. Obviously, because of this lack of personnel, I had to do everything by myself, so in this phase the sound and the image are analyzed together, because they both were captured at the same time by me.

As it has been already said, the images were taken both indoors and outdoors, in the Miyano Communication Center and in the streets of Miyano, near Yamaguchi, on November 11<sup>th</sup>.

It was a cloudy day, with sporadic rains occasionally, so the color temperature was even higher than if I had filmed in a sunny day.

I couldn't prepare a storyboard with all the details in it because the festival didn't depend on me so I couldn't manage it, but I had the idea of what I wanted to achieve though.

First of all, the procedure of filming must be clear, before start it:

- Set up the tripod and level it, although some scenes were taken freehand, because of the difficulty or sometimes even the impossibility of taking them with tripod, either because it's a moving plane or because the prospect that I wanted to achieve required it.
- Put the camera on the tripod and secure it.
- Check camera settings.
- Black balance and white balance.

And then I could start filming. In some cases, I couldn't do all of these steps before the shooting because I wanted to capture some special moments that weren't going to be repeated.

Now I'm going to explain how were the scenes I wanted to take, and their similarity with the real scenes that I took, comparing them.

In the video there are three different parts, and each part contains several planes from few different prospects and angles, trying to film every detail of each moment and everything that was happening in there. The first one takes place in the Miyano Communication Centre, in a room, where the participants are putting on the typical clothes, with a lady's help. The second one takes place in the same Centre, but in another room, in a kind of dining room, where people eat and drink something before the festival, and are made them up with another woman's help. And finally, in the

third one, held outdoors, the festival takes place, walking around some streets of the neighborhood.

Also, it's necessary to explain in this stage what's the festival about, and therefore the different part of the video can be explained and understood in a better way, justifying every decision or step taken in the process.

Basically, and trying to sum up the aim of the festival, some people of an association dressing pink clothes and with make-up on their faces, walk around a neighborhood carrying a kind of banner and making several stops. In every stop, in front of a house, the owners of the house come out, and then the people dressed in pink start singing a song and dancing, shaking that banner. This is an attempt to attract the fertility for the owners of the houses, although it can be supposed because of the explicit dance, banner and lyrics of the song. Also, they try to regain strength before and after the festival, but for me it's not as important as the real festival, so I didn't pay so much attention to it in the video.

About sound, I recorded everything I need for the acoustic elements, such as the main song that the people of the festival sing while they are doing the typical dance. The idea was to keep listening to the original sound of the images in the two first parts, but adding a low background soundtrack, and then in the third stage be able to listen to the main song, treated with several effects in the post-production stage. But this is something I'm going to explain in detail now, the characteristic of the sound of each part separately.

### 3.2.1. First part

One of the most important rituals of this festival is the moment in which they put on their typical clothes. They are surprisingly and characteristically pink, and that responds to one of the aims of the people who actively participate in the festival.



I also could see how difficult it is to try to put on all of those clothes. The process is quite long, and people wear few layers of clothing, so that's why there was a lady helping them. I found this moment very beautiful, and special, so I tried to film it as much as possible, and show it in my video as a main part of the festival, too.

As it can be watched in the video, all the clothes need to be in a characteristic way, and the shoes, very typical here in Japan, are special hard to put on, because they are so long, they reach almost the knee, and they have so many little buttons from the bottom to the top, so they took a while to have them perfectly tied. And then, to have them more fixed to the leg, they use some ropes.



About the sound in this part, besides the sound of the images, I also recorded some background noise for the final video. Because of this, in some occasions it can be heard the typical sound of plastic bags and all that stuff, to give more realism to the situation. The low soundtrack will be added later, in the post-production stage.

### 3.2.2 Second part

Make-up is as important as clothes, at least in this festival, so also I wanted to focus on this step of this special tradition. It was really amazing and interesting watching the process as a viewer, by my camera, as if I wasn't there. Thus, I could expect what real viewers can feel while they watch to it, so I could guess the points which I would exploit of these magic moments.



One of the things I wanted to show in this part is the different skills people have to make them up. Some of them need so much help for everything, and others can do it by themselves. This doesn't only emphasize their ability as a make-up artist, but their experience in the festival. Therefore, it's easy to figure out who has participated in the festival more than once and twice, and who is a beginner.

So this is also beautiful, comparing the level of knowledge and experience is also part of the video, and it has a big role in the building up of the festival's charm.





Although this part also takes place indoors, the room is different, therefore so is the illumination. In the first part, the light comes mostly from outside, and the brightness is higher because there are several big windows from one side to the other of the room. But in this case, there are not as many windows, and they are smaller, so the natural light is lower. It comes from fluorescence lamps, so the temperature color is different. In fact, they can be seen in some planes, so there will be work for the post-production process.

The sound in this part is also a mix of a low soundtrack and the typical and real noises of the moment in which the images were filmed, to make them more real. Because of it, there will be also noise of plastic bags and typical stuff related to eat and drink, like metal cans. Apart from this, there was a little boy there, so I didn't want him to appear in the video but I wanted him to be heard. The reason is that it can contribute to make the festival and the video more special. I want the viewer to feel the enthusiasm of the child proud of his father just with his comments and the happiness in his voice, like freaking out. And also, the father proud of him and of the festival, bringing his son with him, making him to be acquainted with the festival. So I wanted to show it, which also contributes to its charm, making the viewer think that in some years, that child can participate in this tradition, becoming a man in pink, and not letting it to disappear.

### 3.2.3. Third part

This is the longest part of the video, and obviously which has the most interesting scenes of the festival. The same dance was repeated so many times, so I had the chance to film it from different points of view, playing with the angles and the prospects. Also, I filmed every participant. Some planes are close to the people, and others are more general, to give a general information about the process and the environment.

One of my principal objectives was to create original prospects, inserting different planes continuously to give rhythm to the video and to make it not really repetitive. I think feet are very interesting to be shown and watched in the dance, so that's why I took several planes of them. Also, that's a way to show the characteristic shoes, looking like shocks, but with a thick rubber sole. As a different way of filming, I also played with mirrors and windows, as can be seen here.



Another of my objectives of this video was to make the viewer feel as if he or she was also participating in the festival, so at some points, the position of the camera and the distance to the real participants make it possible. Actually, the purpose is to make the camera do the role of another person, as if it showed what the eyes of the person who is there can see. This is an effect that I especially like very much, so I wanted to use it. Thus, the viewer can feel closer to the festival and to the images he is watching. And it's a better way to project and transmit the magic of this traditional performance and its charm.



Finally, I thought it was a good idea to take images for transitions. The performance is not long enough to show it just once in the video, because it would be very short. So I decided to show it at least twice, with the same song obviously, but with different images. This made me think about putting something between them, so a kind of transition was necessary. Also, most of the time they were walking from a house to another one, so actually it's very representative of the course of the festival, too, and it's a way to show properly how many people were participating in the procession, their appearance and how was it carried out.



About the sound, in this part the soundtrack is not as important as in the other two, although it should be used in the transition, too. The most important thing here is the song, and trying to reproduce it clearly. I recorded it so many times, sometimes including the images but also paying attention only to the song, to have it in a perfect way to be able to process it. Therefore, it's also work for the post-production stage. In the parts in which the song is played, the idea is to mute the sounds of the images (because in every video the song can be heard but in different parts of it), and to synchronize them with the chosen track in which the song is heard in the best way. In the transition, the idea is more or less the same than that in the first two parts of the video, to keep the real and random sounds to make the situation more natural, and adding a low background soundtrack.

Also, I wanted to do some animations, either in the beginning or in the end of the video, playing with images or titles moving by the screen, but this is something that I would like to explain in the post-production stage.

It was only one day of work, but it was hard because I was so many hours filming them, and also I had to be very concentrated, taking care of all the details related both to image and to sound, so I was the only responsible of it.

### 3.3. Post-production stage

This is, undoubtedly, the longest process of making the video. I was the only person in charge of filming, so even the election of the best images and sounds for the final video was made in this stage. I tried to use at least a part of almost all the videos I filmed, to show as different images as possible to make it amusing and dynamical.

It's necessary to do the mounting of the scenes, color correction and digital processing of images and sound, and it's done in this stage.

The amount of work in this stage was a big deal, so I think it's more convenient to divide the explanation in two, one for the procedure made for image and another one for those ones made for sound.

#### 3.3.1. Image

In this section of the report it's going to be explained step by step all the settings made on each digital image through the digital processing software called Adobe Premiere Pro CS5.5.

The post-production includes all the changes made on the video signal after its recording, i.e. after the production phase. Different applications are made to the video, in order to improve and change or alter the final product.

Thus, in the post-production process we have a first phase which is the editing of digital video often work for the editor, and a second phase which is the digital processing of the video edited. In both phases, the work of the photography director would not have been possible without the help of software which will let you do all digital tweaks required in each case. It is therefore desirable to know well the programs that are going to be used.

Adobe Premiere is the more used tool of nonlinear digital video editing by professionals and amateurs, because it is widely famous in the field of video editing. This program has been used both for the editing and mounting phase of the video, and for the treatment phase of the image (and the sound) once the video has been edited.

#### Digital video edition

In short we can say that the process of digital video editing is simply treating the video that has been captured on computer. During this process, cuts are made to the frames that you want to present in the short film (on selecting the best shots captured), as well as the incorporation of the desired sound. There are several video formats available.

It is important to know the differences between traditional editing (linear) and nonlinear editing. The traditional editing is cutting and pasting the film. The virtual editing consists of manipulating a digital editor.

In digital systems, both the images and the sounds are digitized on hard drives and can be read in the order chosen by the editor without being moved or reproduced. For this reason, this way of edition is also called nonlinear or virtual.

The way of edition used here is nonlinear, the one used in digital technology. This way allows editing frames sort in the order you want. One advantage of the nonlinear editing is you can do all the tweaks you want without loss of quality.

When we face a digital video editing, the first step is the selection of good shots of each plane. On one hand, the image has to be right or the one we are looking for when recording, and on the other hand the sound has to be right as well, but this will be explained later.

This is work for the editor, who tries to give a meaning to the short film through the election and the rhythm and the duration of the individual clips, since single images can acquire new meaning when are grouped.

The rhythm is the dynamic impression given by the length of the planes, their change throughout the video and the effect of the editing.

Another element to be taken into account when editing is the separation or the union of shots and sequences in a film. This can be done in several ways, depending on what you want to transmit or achieve: by cutting, by fading to black, by chaining, by curtain or by scanning.

### Grading and digital treatment

The image digital processing is the treatment of color and luminance of audiovisual materials. The grading is a process in the post-production where you make color, brightness and contrast corrections, controlling the quality, colorimetry and image brightness to achieve continuity in lighting. This process needs to be performed because during filming there can be differences between the different planes in terms of brightness, color, contrast, brightness...

Therefore, the most important transformations that must be performed is to add transitions and effects, then this will be the topic that will be discussed below.

Keep in mind that with Adobe Premiere each clip we add to the Timeline panel has got previously applied (integrated) 3 fixed effects, which are:

- Movement, which includes properties that allow nesting, rotating or scaling the clips.
- Opacity, which reduces the opacity of a clip for use it in effects as overlays, fades or solutions.
- Volume, which controls the volume of any clip that has audio.

But in addition to these effects, the software has a fragmented effect panel. The effects that have been used for the digital processing of the images have been mainly video effects.

## Process

After the good images were chosen, I edited them in the way I explained in the production stage, in three different parts and trying to make the video dynamical, not showing every time the same kind of planes for almost 10 minutes.

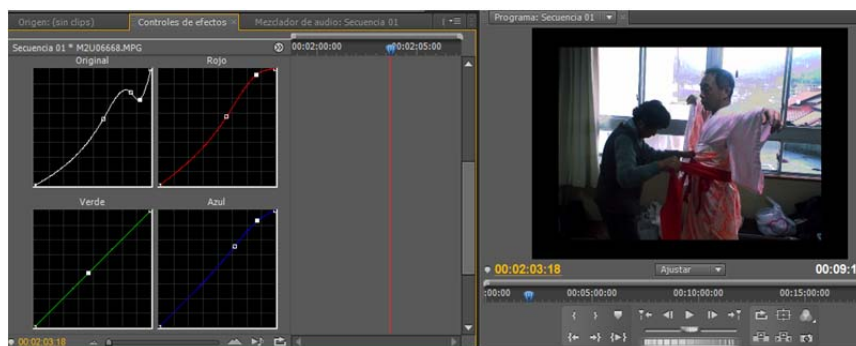
Once this is done, it's time for corrections and video effects and transitions.

## Effects

The main video effects that have used in the video are:

- Video effects → Adjust → Shading/Lighting
- Video effects → Adjust → Light effects
- Video effects → Color correction → Brightness and contrast
- Video effects → Color correction → Luminance corrector
- Video effects → Color correction → RGB color corrector
- Video effects → Color correction → RGB curves
- Video effects → Generate → Circle
- Video effects → Generate → Lens flash

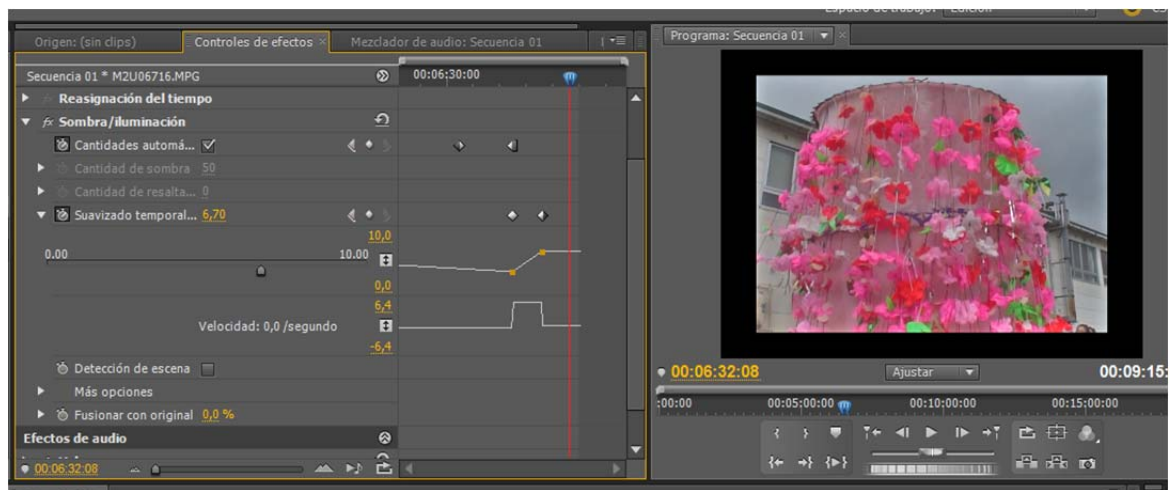
This is an example of the RGB curves correction, due to the different color temperature of consecutive images. It was necessary to decrease little bit the luminance it the high levels and increase slightly the red color curve at those levels, just to make the image nicer and achieve a warm atmosphere, and stand out the colors of the clothes.



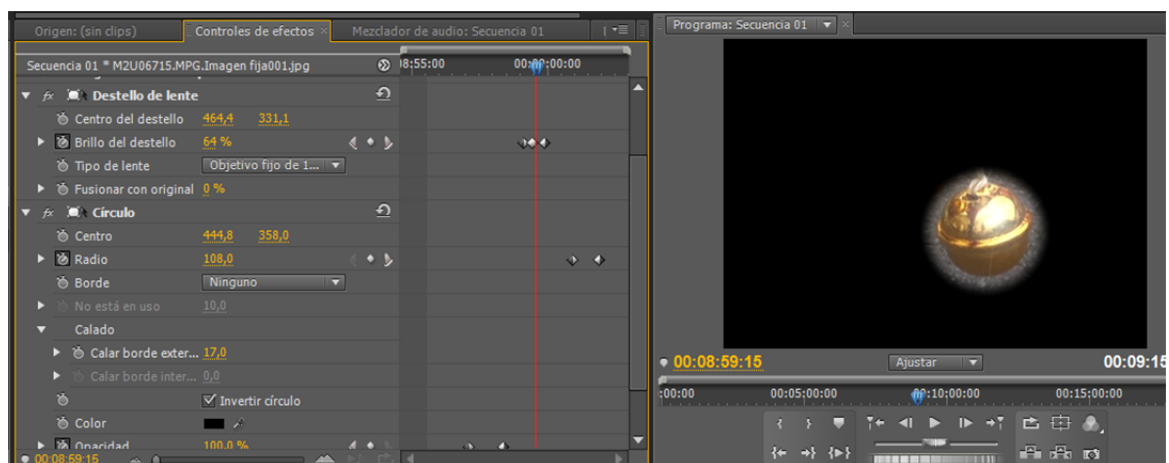
As I have already said, the scenes don't have the same color temperature or the same illumination, so other part of that hard work to try to make them similar was to do some changes in the luminance and shading of several frames. One of the problems of these transformations of the scenes is that you are never a hundred percent sure to have made the perfect changes, because it's something subjective. It depends on each



person and something that for me is beautiful and pleasant to see, maybe it cannot for other person. This also happens with sound, and I will explain it later.



In one of the final views of the video, it is shown one of the golden balls altered by some effects, to increase the charm of the video even in when it's about to be finished. Those golden balls have an important role in the festival, so I wanted to pay special attention to it.



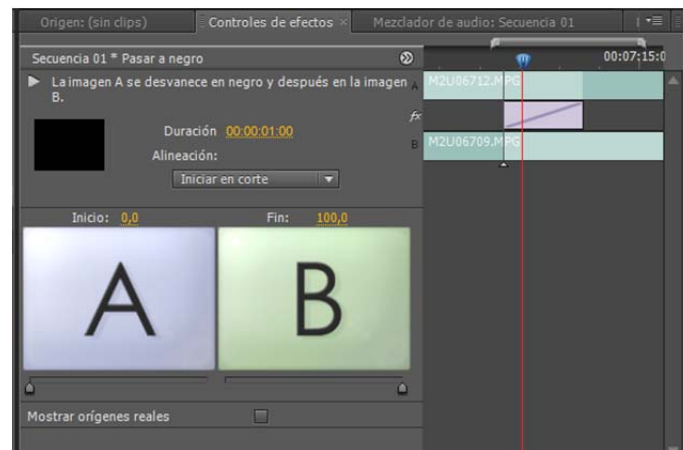
## Transitions

The most important and used transitions in the video are:

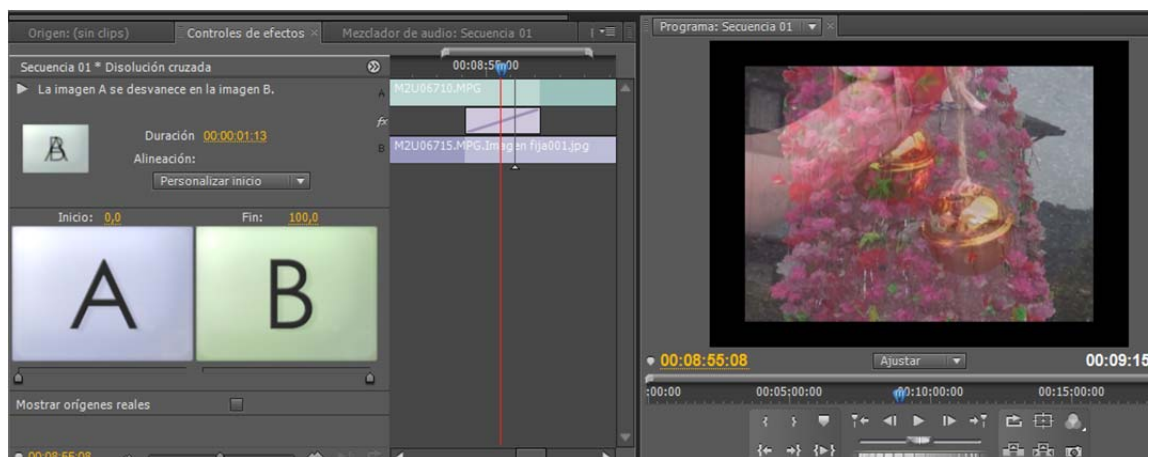
- Video transitions → Dissolve → Cross dissolution
- Video transitions → Dissolve → Picture dissolution
- Video transitions → Dissolve → Black fade

In my opinion the option dissolve gives us the most natural transitions between different planes, and among the possibilities you have in that option, these three are the most beautiful for me, so I like them and I think they do a good job.

Above all, the more used is the black fade transition, mainly between the different parts of the video, between the title and the first part of the video, when it starts, and in the beginning and the end of it, trying to do it as smooth as possible. It is not good for the viewer to start or to finish it abruptly, because it's not attractive and also it can confuse them.



When the change or the transition of two images are not very important because they are not so different, you can use another effects like the cross transition, which don't make you think that the video has passed from one part to another one, as the viewer may think when the black fade transition is used.



As it can be appreciated, at some point of the video both images are being shown at the same time, so it also allows to achieve a quicker rhythm, and not to lose continuity in the video.



### 3.3.2. Sound

The function of the post-production is to organize and give a final shape to the several sound materials to create a unique soundtrack to be joined to the video. This soundtrack is called master audio and it is the sound from the start to the end of the film. So the most important part of the process is the edition, in which you select, measure and order the sound elements to build continuity in the final audio track.

The simplicity of the sound in the video allows me to not think about ADR, foley and special effects at all, so the main objective is to achieve a good edition of the sound, perfectly synchronized to the images. So also it's necessary to decide best tracks to be part of the final video.

The software used was also Adobe Premiere Pro CS5.5 due to the lack of other software, and also because it was enough taking into account the requirements of the sound processing.

So this part depends directly on the video edition process, because before synchronizing all the tracks chosen to build up the video, the images must be already edited, to be able to work on them.

#### Process

Once the video is edited, the sound can be started to edit, taking care of every image in the video and the progress of them, because the sound will play an important role in the rhythm of the video.

First of all, it's important to put the song of the third part on the correct position, to seem like is being sung in the moment of watching the video, and give more realism to the scenes and the movements of the dance.

Then, in the points in which it's required I had to add the soundtrack, actually got from Youtube.

There are no dialogs in the video, so the next step is to make some transformations and changes to the sound we already have, using the audio effects and the audio transitions of the software which we are implementing the video with. Then, when this is finished, it's necessary to check if it's anything that needs to be fixed, to be erase or to be added, according to the images. In this case it should be convenient to create some sound special effects.

#### Effects

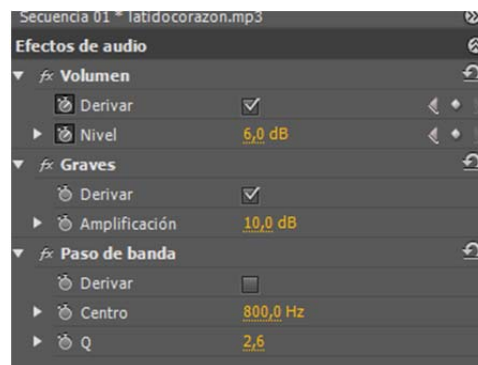
One of the main characteristic of the sound is that it is subjective, so there is not only one correct way of doing things. Every change done in the sound is right or wrong depending on the person who is listening to it, so we have to trust our instinct and out

perception, in this case, mine. I was working on it until I thought I had achieved a nice sound for the ear.

Therefore, I was doing so many changes with the volume and the gain options, varying their values conveniently. Some of the scenes were filmed with so much background noise, much more than it was desired to show a natural situation, so it was necessary to turn it down. On the opposite way, other ones were so silent, so I turned up the volume and the gain.



Then, I have used effects to transform the frequency of some sound tracks. The more used have been the equalizer, lowpass, bandpass and highpass filters, trying to have the desired sound as clear as possible.



In some occasions, as for example in the parts in which the song can be heard, I have also used the reverb, to create a nicer and more colorful sound, working on the low frequencies, also achieved using directly the option bass, which increases their presence in the video.

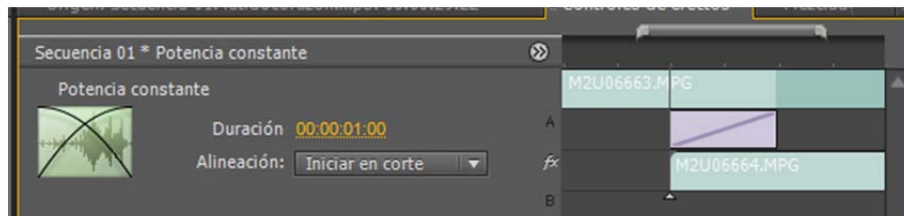
## Transitions

Adobe Premiere Pro CS5.5 only has three different available transitions, and I have used the three of them, depending on the necessities I had in each moment and the requirements of the different parts of the video.

- Constant gain. It modifies the audio at constant speed both in the input and the output as you move throughout the clips. It may sound abrupt.
- Constant power. It creates a smooth and gradual transition analogous to the transition between video clips. The audio in this crossfade attenuation decreases for the first clip slowly at first and then falls

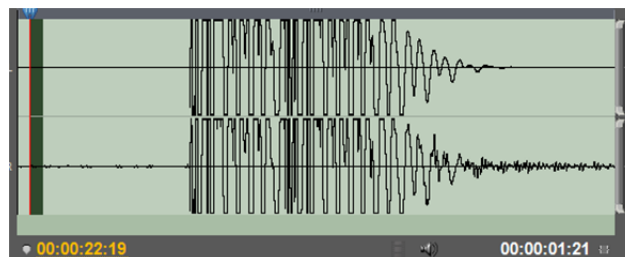
rapidly towards the end of the transition. For the second clip, the audio increases rapidly at first and then more slowly, as it reaches the end of the transition.

- Exponential fade. It makes the first clip disappear in a smooth logarithmic curve while the second clip starts appearing also in a smooth logarithmic curve.



As I did with some images, I also played with the speed of the soundtrack to achieve different rhythms and feelings during the video.

Finally, after all of these changes, I tried to include some different sounds, as in the beginning with the heartbeats. I downloaded it from a wide library of sound effects on the Internet, and then I also work on its volume and its frequencies, especially the low ones. Here it is the heartbeats track represented in time.



### 3.3.3. Animations

In the field of animations of the video, the most important and the hardest to achieve is the beginning. There is also a kind of animation in the end of the video, to make the credits a little bit more interactive, but it's much simpler. So I want to focus this part on the start on the video, the title.

The main purpose of the title was to be shown as if it was being written as the video was being reproduced. I had to get so much information about it, but all the options had to be rejected. I needed specific and expensive software, so it was unavailable. But finally, looking for more information and exploring different webs, I got the possibility to do it in a less professional way, harder, but successful after all. So I did. I used the option:

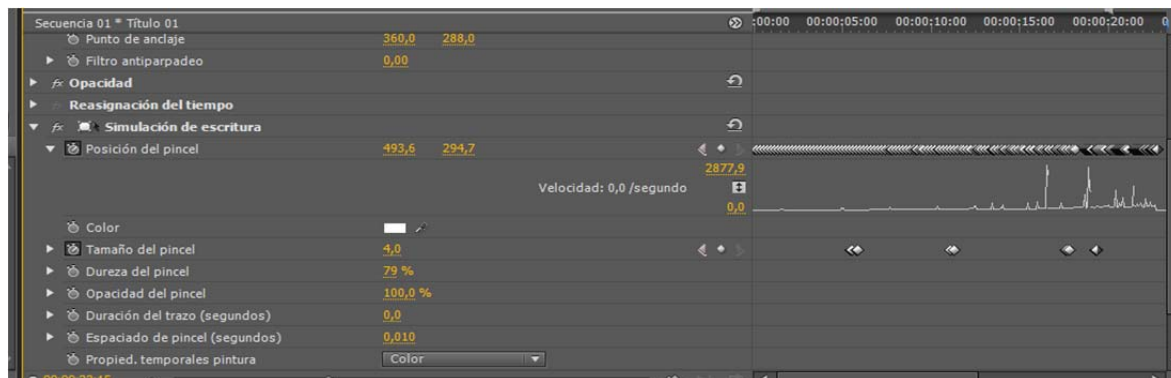
- Video effects → Generate → Write On

It is a kind of simulating writing. The purpose of the effect is to draw a path to show the way in which the letters must be written while the video is being reproduce. It's a hard and subtle work, because it's necessary to work almost frame by frame to achieve the perfect and most natural effect when the viewer is going to see it.

So basically this effect makes a kind of mask that shows the objects of an image as it goes over it by the path you have already drawn. Therefore, one of the most difficult tasks is to make that mask as big as possible to be sure that every part of the letter is being shown, but as small as possible to not show parts of other letters beside the letter that is being shown, because it would make the effect unreal and it would lose credibility.

Another difficult part was to keep the same speed during all the effect, which was quite hard if it is taken into account that every two or three frames it was necessary to create a key frame with new movements. Anyway, any slight difference with the speed throughout the appearance of the title could be fixed working on the speed at which the video was reproduced later, after the effect is done.

In this image below, it can be seen all the key frames which were necessities to achieve the appropriate effect.



After this was already done, it was required to do something else, visually attractive for the viewer and making the video as interesting as possible before being played. So I decided to work with several aspects that can be related to Japan, as its flag. It was achieved by varying the different parameters of the next effect:

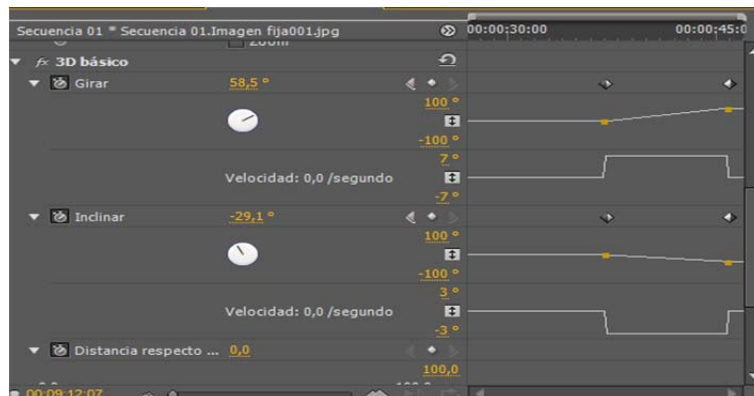
- Video effects → Generate → Circle

The red color is related to the heart, so that's why I generated that kind of heartbeats. The purpose was to create the appropriate atmosphere to make the viewer think that he or she just doesn't have only to watch but also to feel it. This contributes to increase the magic or the charm of the festival and of the video.

All of those visual effects were also modified by different changes in the position or the scale of the images, and also adding more video effects such as:

- Video effects → Prospect → Basic 3D
- Video effects → Transform → Cut
- Video effects → Adjust → Light effects

I would like to pay special attention to the first of these three effects, the 3D effect. I couldn't get other software more than Adobe Premiere, so I had to solve everything I needed or I wanted to achieve with this program. I also wanted to introduce some kind of 3D animation, so I found this among the video effects. And although it is a little bit simple and easy to implement, the final result is the one I was looking for.



In this image we can see the transition that one part of the title has, making it to rotate and to tilt as desired, until it finishes with a black fade to let the video start.

I have tried to synthesize the process of post-production with all its changes and transformations as best as possible, writing only the most important information necessary to make the video understandable. Perhaps sometimes there is more extra information not necessary at all, and other times it should be interesting to add other aspects of the work, but I think that more or less I did this report as a summary containing everything I wanted to say.

## 4. Conclusions

One of the most difficult things in the process of doing this project has been how to solve the problems I was finding while working in it. When someone tries to make a video of these characteristics, it is expected to have many troubles during the process, but finally, regardless of whether he has to spend more or less time, they are solved after all. In my case, in so many occasions I didn't have the skills to know what to do. Since the beginning I knew this is not just an amateur video done for fun. This is a final project of a Technical Engineer degree so the level of the video needs to be higher. That's why I tried to do my best every moment I was working on it.

Moreover, I also had some problems with the software and the file in which I had my project. First of all, I started working with the program in Japanese, but it was a big deal so I gave up and I looked for another possibility. So then I downloaded the trial version in my computer, this time in English, but when it expired I had to download another version of that software, and consequently, I couldn't open the file in which I was working. Therefore, I had to restart from the beginning. I guess this happened because of my inexperience and I have already learnt what to do for the next time, so from then on, I was saving the project after several changes were made.

Another difficulty was to film in some occasions without any kind of tripod, because it was impossible depending on the desired plane that I wanted to achieve in each case, the lack of time to have everything ready to film and the moments in which they were walking. As I said before, I had to adapt myself to their schedule and the things they were doing in each moment, so when they moved from one place to another, I had some complications carrying all the materials and filming at the same time, and sometimes I had to hurry up, because they couldn't wait for me. Many people are involved in that festival, so my work there was trying to put all of those traditions, behaviors and sensations into images, and then insert a beautiful and characteristic soundtrack, to get an atmosphere perfectly Japanese and as traditional ancestral as possible.

In some occasions, I didn't have the material I would have liked to have, maybe because I couldn't be able to film something in the correct way, and it couldn't be repeated. So, in these cases, I tried to choose the better shot, or the less bad, and make the necessary transformations in the post-production stage. The same happens with some planes which I couldn't correct at all in terms of color, brightness or luminance correction. There were few scenes especially difficult to fix without changing the good parts of them, because some of them were filmed in very bad and different conditions of light.

On the other hand, to be the only one working on a video is a little bit hard, because I was in charge of everything related to it, both image and sound mainly, and it's very difficult to be good at one of those topics, so it's almost impossible to be at both. Anyway, I believe I have the skills to do it properly, and I did it as good as possible if we consider the means at its disposal, so I think I have done a good job in general terms. Of course, it could be better, but I guess it's something inevitable if we think that this is

my first video of these characteristics. Nevertheless, this is a chance to improve it the next time, and it encourages me to keep studying and getting more knowledge about this kind of video processing, and to feel more confidence about my work, my skills and my possibilities as a video editor, photography director, sound director, etc.

The quality of the final video is not as good as I desired, the image doesn't have a high resolution, and it sometimes gets even blurred. But this is something I couldn't solve at all. I guess the reason is the equipment I used, that it wasn't too good so it's impossible to transform the quality of an image to a higher level than the one in which it was filmed.

Also, another difficult part of the video was to create the animations, because I didn't have knowledge enough to try to achieve and develop every single idea in which I could imagine. Therefore, I did something easier, but dynamical, attractive and amusing for the viewer.

Finally, I would like to thank my tutor, professor Ankei, Mr. Saito and all the people from the association of Miyano to conserve the ancient traditions of the city.

## 5. Bibliographies

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Adobe Premiere CS5.5 tutorial.

Different kind of forums, such as:

- [www.videoedicion.com](http://www.videoedicion.com)
- Forums.adobe.com
- adobepremiere.es.tl/Trucos-y-Efectos.htm
- Other webs

Video tutorials on Youtube.